



PROJECT NUMBER:

338884.FL

BORING NUMBER:

AD-03

SHEET 1 OF 16

ROCK CORE LOG

PROJECT : Progress Energy Florida - COLA Investigation, Levy County Site LOCATION : 1723083.8 N, 458040.4 E (NAD83)

ELEVATION : 42.4 ft (NAVD88)

DRILLING CONTRACTOR : Boart Longyear, Huntsville, AL; Driller: A. Anderson

CORING METHOD AND EQUIPMENT : BL300T S/N 1517, mud rotary, HQ tools, HW casing

ORIENTATION : Vertical

WATER LEVELS : 5.88 ft bgs on 9/13/07

START : 8/16/2007

END : 8/24/2007

LOGGER : P. De Sa'rego, J. Townes, R. Bitely, M. Fauroute, C. Sump

DEPTH BELOW SURFACE AND ELEVATION (ft)	CORE RUN LENGTH AND RECOVERY (%)	DISCONTINUITIES			SYMBOLIC LOG	LITHOLOGY	COMMENTS
		RQD (%)	FRACTURES PER FOOT	DESCRIPTION			
				DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS		ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	
-157.6	200.0			200.0-200.6' - Fracture, vertical, rough, undulating, open		Limestone 200.0-203.6' - light olive gray to yellowish gray, (5Y 5/2 to 5Y 7/2), fine grained, moderate HCl reaction, weak to medium strong (R2 to R3), trace voids (<1/16") 201.4-201.5' - horizontal black organic laminae 202.8-203.1' - horizontal black organic laminae 203.6-205.0' - pale yellowish brown, (10YR 6/2), fine grained, moderate HCl reaction, weak to medium strong (R2 to R3), 30% voids (<1/16"), trace casts/cavities (<1/16") 205.0-207.1' - light olive gray to medium gray, (5Y 5/2 to N5), fine grained, moderate HCl reaction, medium strong (R3), trace medium to coarse subrounded fragments 206.5-207.1' - 5 to 10% voids to 1/16", trace cavities up to 3/4 x 1-3/16" 207.1-209.0' - pale yellowish brown to yellowish gray, (10Y 5/4 to 5Y 7/2), fine grained, weak HCl reaction, trace voids to 1/16", strong HCl reaction in pulverized material 209.0-209.85' - grayish orange pink, (5YR 7/2), fine grained, moderate HCl reaction, medium strong to strong (R3 to R4), voids (<3/16") over 70% of surface, moderately fossiliferous 209.85-210.7' - moderate orange pink, (5YR 8/4), very fine grained, mild to moderate HCl reaction, weak to medium strong (R2 to R3), voids over 10% of surface, cavities up to 3/8" over 1% of surface, laminated, very poorly fossiliferous No Recovery 210.7-213.0' Limestone 213.0-217.0' - grayish orange pink, (5YR 7/2), very fine grained, mild to moderate HCl reaction, medium strong (R3), voids <1/16" over 50% of surface, few cavities up to 3/4", poorly fossiliferous No Recovery 217.0-219.0'	Boring AD-3 blind drilled to approximately 200 feet below ground surface before beginning sampling/logging. "Water level is based on Ground Water Monitoring at LNP site (FSAR Table 2.4.12.08)" Logger: C. Sump (limited space in header) Approximately 1.8' of slough (from 0.0-200.0' drilling) removed from top of run R1: 12 minutes 15:25: Segment of R2 clogged, removed for logging and resumed R2 - HQ at 206.5' Driller's Remark: R2 - HQ was a 4.0' run due to blockage in core barrel R2: 14 minutes R3: 15 minutes R4: 16 minutes J. Townes continues logging
	R1-HQ 5 ft 100%	0	>10	200.6-201.4' - Fracture zone, angular fragments, 1-3" in size			
			>10	201.7-202.2' - Fracture zone, angular fragments, 1" to 2-1/2"			
			>10	202.4' - Fracture, horizontal, smooth, undulating, open			
			>10	202.5-202.7' - Fracture (3), 60 deg, rough, undulating, 1/8" relief			
			>10	202.9' - Fracture, horizontal, rough, undulating, open			
			>10	203.1-204.7' - Fracture zone, fragments 1/4-3"			
205 -162.6	205.0			204.7-205.0' - Fracture zone, fragments 2-3"			
	R2-HQ 4 ft 100%	0	>10	205.0-205.5' - Fracture zone, fragments 1/2' to 2" in size			
			>10	205.5-206.5' - Fracture zone, fragments 1/4-1" in size			
			9	205.8, 206.0, 207.1, 207.3, 207.4, 207.5, 207.5, 207.6, 207.7, 207.8, 207.9' - Fractures or bedding plane (11), horizontal, rough, planar to undulating, 1/8" open			
			>10	208.1, 208.15, 208.2' - Fractures or bedding plane (3), smooth to rough, planar to undulating, 1/8-1/4" open			
210 -167.6	210.0			208.3-208.6' - Fracture zone, smooth to rough, planar to undulating, 1/4-2" open		No Recovery 210.7-213.0' Limestone 213.0-217.0' - grayish orange pink, (5YR 7/2), very fine grained, mild to moderate HCl reaction, medium strong (R3), voids <1/16" over 50% of surface, few cavities up to 3/4", poorly fossiliferous No Recovery 217.0-219.0'	R3: 15 minutes R4: 16 minutes J. Townes continues logging
	R3-HQ 4 ft 43%	8	4	208.6-209.0' - Fracture zone, fragments 2-3"			
			NR	209.0-209.85' - Fracture zone, multiple high angle intersecting fractures, rock fragments up to 1/8"			
			NR	210.25' - Bedding plane, horizontal, smooth			
			NR	210.3' - Fracture, vertical, rough, undulating, <1/16" open			
			NR	210.4' - Fracture, horizontal, rough, undulating, 3/8" open			
			NR	210.6' - Fracture, vertical, rough, undulating, <1/16" open			
			>10	213.0-213.4' - Fracture zone, multiple high angle intersecting fractures, rock fragments up to 1/8"			
			>10	213.6' - Fracture, horizontal, rough, undulating, 3/8" open			
			>10	214.05' - Fracture, rough, undulating, 3/16" open			
215 -172.6	215.0			214.25-216.15' - Fracture zone, multiple high angle intersecting fractures, rock fragments up to 1-9/16"		No Recovery 217.0-219.0'	R4: 16 minutes J. Townes continues logging
	R4-HQ 6 ft 67%	6	>10	216.3, 216.55, 216.65' - Fracture (3), horizontal, smooth, bedding plane, very low relief			
			NR	216.65-217.0' - Fracture zone, multiple high angle intersecting fractures, rock fragments up to 1-3/16"			
			>10	219.0-220.8' - Fracture zone, multiple high angle intersecting fractures, rock fragments up to 1-3/16"			
220			>10				



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SHEET 2 OF 16

ROCK CORE LOG

PROJECT : Progress Energy Florida - COLA Investigation, Levy County Site LOCATION : 1723083.8 N, 458040.4 E (NAD83)

ELEVATION : 42.4 ft (NAVD88)

DRILLING CONTRACTOR : Boart Longyear, Huntsville, AL; Driller: A. Anderson

CORING METHOD AND EQUIPMENT : BL300T S/N 1517, mud rotary, HQ tools, HW casing

ORIENTATION : Vertical

WATER LEVELS : 5.88 ft bgs on 9/13/07

START : 8/16/2007

END : 8/24/2007

LOGGER : P. De Sa'rego, J. Townes, R. Bitely, M. Faurote, C. Sump

DEPTH BELOW SURFACE AND ELEVATION (ft)	CORE RUN LENGTH AND RECOVERY (%)	DISCONTINUITIES			SYMBOLIC LOG	LITHOLOGY	COMMENTS
		RQD (%)	FRACTURES PER FOOT	DESCRIPTION			
				DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS		ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-177.6	R5-HQ 5 ft 36%	0	>10			Limestone 219.0-220.8' - yellowish gray to grayish orange pink, (5Y 7/2 to 5YR 7/2), very fine to fine grained, moderate HCl reaction, weak to medium strong (R2 to R3), voids <1/16" over 5% of surface, poorly fossiliferous No Recovery 220.8-224.0'	R5:13 minutes
224.0			NR				
225	R6-HQ 5 ft 58%	12	2	224.7-224.9' - Fracture, 10 deg, rough, undulating, high relief (3/4") due to fossil molds 225.2-226.9' - Fracture zone, multiple high angle intersecting fractures, rock fragments up to 1-3/16"		Limestone 224.0-226.9' - yellowish gray, (5Y 7/2), very fine grained, moderate HCl reaction, weak to medium strong (R2 to R3), voids <1/16" over 60% of surface, cavities up to 3/8" over 10% of surface, fossil molds, moderately fossiliferous No Recovery 226.9-229.0'	R6:5 minutes
-182.6			>10				
			>10				
			NR				
229.0	R7-HQ 5 ft 46%	0	>10	229.4' - Fracture, 10 deg, rough, undulating, ~3/32" open, thin black material over 25% of fracture surface 229.55' - Fracture, 10 deg, rough, undulating, <1/16" open 229.7-231.0' - Fracture zone, multiple high angle intersecting fractures, rock fragments up to 1-3/16" 231.0' - Fracture, vertical, rough, undulating, ~3/8" open		Limestone 229.0-231.3' - yellowish gray, (5Y 7/2), fine grained, moderate HCl reaction, weak (R2), voids up to 1/16" over 20% of surface, cavities up to 3/4" over 1-2% of surface, fossil molds, poorly fossiliferous, trace laminations No Recovery 231.3-234.0'	R7:7 minutes
230			>10				
-187.6			>1				
			NR				
234.0	R8-HQ 5 ft 30%	8	>10	234.0-234.5' - Fracture zone, multiple high angle intersecting fractures, rock fragments up to 1-3/16" 234.9-235.5' - Fracture zone, multiple high angle intersecting fractures, rock fragments up to 1-3/16"		Limestone 234.0-235.5' - yellowish gray, (5Y 7/2), very fine grained, moderate HCl reaction, weak (R2), voids <1/16" over 5% of surface, cavities up to 1" over 1-2% of surface, fossil molds, trace laminations, poorly fossiliferous No Recovery 235.5-239.0'	R8:7 minutes
235			>10				
-192.6							
			NR				
239.0			>10	239.0-240.0' - Fracture zone, multiple high angle intersecting fractures, rock fragments up to 1-9/16"			
240							



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SHEET 3 OF 16

ROCK CORE LOG

PROJECT : Progress Energy Florida - COLA Investigation, Levy County Site LOCATION : 1723083.8 N, 458040.4 E (NAD83)

ELEVATION : 42.4 ft (NAVD88)

DRILLING CONTRACTOR : Boart Longyear, Huntsville, AL; Driller: A. Anderson

CORING METHOD AND EQUIPMENT : BL300T S/N 1517, mud rotary, HQ tools, HW casing

ORIENTATION : Vertical

WATER LEVELS : 5.88 ft bgs on 9/13/07

START : 8/16/2007

END : 8/24/2007

LOGGER : P. De Sa'rego, J. Townes, R. Bitely, M. Faurote, C. Sump

DEPTH BELOW SURFACE AND ELEVATION (ft)	CORE RUN LENGTH AND RECOVERY (%)	DISCONTINUITIES			SYMBOLIC LOG	LITHOLOGY	COMMENTS
		RQD (%)	FRACTURES PER FOOT	DESCRIPTION			
				DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS		ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-197.6	R9-HQ 5 ft 24%	0	1	240.1' - Fracture, 60 deg, rough, undulating		Limestone 239.0-240.2' - yellowish gray, (5Y 7/2), very fine grained, mild HCl reaction, weak (R2), voids up to 3/32" over 30% of surface, fossil molds, poorly fossiliferous, trace laminations No Recovery 240.2-244.0'	R9:7 minutes
244.0			NR				
245	R10-HQ 5 ft 10%	0	>10	244.0-244.5' - Fracture zone, multiple high angle intersecting fractures, rock fragments up to 1-3/16"		Limestone 244.0-244.5' - yellowish gray, (5Y 7/2), very fine to fine grained, moderate to strong HCl reaction, very weak to weak (R1 to R2), voids <1/16" over 50% of surface, trace laminations, area of oxidized pyrite 3/4", poorly fossiliferous No Recovery 244.5-249.0'	Driller's Remark: Smooth drilling, no loss of resistance or rod drops; incompetent material being ground up and washed out
-202.6			NR				
249.0	R11-HQ 5 ft 12%	0	>10	249.0-249.6' - Fracture zone, multiple high angle intersecting fractures, rock fragments to 1-3/16"		Limestone 249.0-249.6' - yellowish gray, (5Y 7/2), very fine to fine grained, moderate HCl reaction, extremely weak to very weak (R0 to R1), trace laminations, nonfossiliferous No Recovery 249.6-254.0'	R10:7 minutes
250			NR				
-207.6	R12-HQ 5 ft 28%	0	>10	254.0-255.0' - Fracture zone, rough, undulating, multiple high angle intersecting fractures, rock fragments up to 1.5"		Limestone 254.0-256.5' - yellowish gray, (5Y 7/2), very fine to fine grained, moderate HCl reaction, very weak to weak (R1 to R2), trace laminations, cavities up to 3/8" over 5% of surface, fossil molds, poorly fossiliferous No Recovery 256.5-259.0'	R11: 7 minutes
255			2	255.2' - Fractures (2), 60 deg and horizontal, rough, undulating, 3/16" open			
-212.6			NR				R12: 7 minutes
259.0			>10				
260							

ROCK CORE LOG

PROJECT : Progress Energy Florida - COLA Investigation, Levy County Site LOCATION : 1723083.8 N, 458040.4 E (NAD83)

ELEVATION : 42.4 ft (NAVD88)

DRILLING CONTRACTOR : Boart Longyear, Huntsville, AL; Driller: A. Anderson

CORING METHOD AND EQUIPMENT : BL300T S/N 1517, mud rotary, HQ tools, HW casing

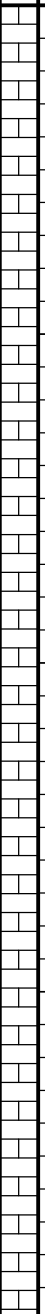
ORIENTATION : Vertical

WATER LEVELS : 5.88 ft bgs on 9/13/07

START : 8/16/2007

END : 8/24/2007

LOGGER : P. De Sa'rego, J. Townes, R. Bitely, M. Faurote, C. Sump

DEPTH BELOW SURFACE AND ELEVATION (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES		SYMBOLIC LOG	LITHOLOGY	COMMENTS	
		R Q D (%)	FRACTURES PER FOOT		DESCRIPTION	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
					DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS		
-217.6	R13-HQ 5 ft 22%	0	>10 NR		Limestone 259.0-260.1' - yellowish gray, (5Y 7/2), very fine to fine grained, moderate to strong HCl reaction, weak (R2), voids <1/16" over 60% of surface, cavities up to 3/4" over 10% surface, fossil molds, moderately fossiliferous No Recovery 260.1-264.0'	R13: 7 minutes	
264.0							
265							
-222.6	R14-HQ 5 ft 22%	0	>10 NR		Limestone 264.0-264.5' - yellowish gray, (5Y 7/2), very fine to medium grained, strong HCl reaction, weak to strong (R2 to R4), voids <1/16" over 10% surface, few small dissolution cavities (<1x1/2"), trace shell laminae (<1/2"), poorly to moderately fossiliferous Interbedded Silt And Limestone 264.5-264.7' - yellowish gray, (5Y 7/2), dry to moist, nonplastic to low plasticity, moderate to strong HCl reaction, coarse angular fragments, <50% limestone fragments, all carbonate Limestone 264.7-264.95' - Same as 264.0-264.5' Interbedded Silt And Limestone 264.95-265.1' - Same as 264.5-264.7' No Recovery 265.1-269.0' Limestone 269.0-269.3' - yellowish gray, (5Y 7/2), very fine to fine grained, strong HCl reaction, medium strong to strong (R3 to R4) No Recovery 269.3-274.0'	R14: 6 minutes	
269.0			10				
270							
-227.6	R15-HQ 5 ft 6%	0	NR		Limestone 264.7-264.95' - Same as 264.0-264.5' Interbedded Silt And Limestone 264.95-265.1' - Same as 264.5-264.7' No Recovery 265.1-269.0' Limestone 269.0-269.3' - yellowish gray, (5Y 7/2), very fine to fine grained, strong HCl reaction, medium strong to strong (R3 to R4) No Recovery 269.3-274.0'	R15: 6 minutes	
274.0							
275							
-232.6	R16-HQ 5 ft 20%	0	>10 NR	Limestone 274.0-275.0' - yellowish gray, (5Y 7/2), very fine to medium grained, mild HCl reaction, weak to strong (R2 to R4), voids <1/16" over 10% of surface, moderately fossiliferous with fossil cast lenses No Recovery 275.0-279.0'		R16: 6 minutes	
279.0							
280			>10		279.0-280.7' - Fracture, <10 deg, rough, fragments <2", intersecting horizontal and vertical fragments		



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SHEET 5 OF 16

ROCK CORE LOG

PROJECT : Progress Energy Florida - COLA Investigation, Levy County Site LOCATION : 1723083.8 N, 458040.4 E (NAD83)

ELEVATION : 42.4 ft (NAVD88)

DRILLING CONTRACTOR : Boart Longyear, Huntsville, AL; Driller: A. Anderson

CORING METHOD AND EQUIPMENT : BL300T S/N 1517, mud rotary, HQ tools, HW casing

ORIENTATION : Vertical

WATER LEVELS : 5.88 ft bgs on 9/13/07

START : 8/16/2007

END : 8/24/2007

LOGGER : P. De Sa'rego, J. Townes, R. Bitely, M. Faurate, C. Sump

WATER LEVELS : 3.66 ft bgs on 9/19/07		START : 9/10/2007		END : 9/24/2007		LOGGER : P. De Saavedra, J. Towles, R. Biley, M. Faurote, C. Smith		
DEPTH BELOW SURFACE AND ELEVATION (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES				SYMBOLIC LOG	LITHOLOGY	COMMENTS
		R Q D (%)	FRACTURES PER FOOT	DESCRIPTION			ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
				DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS				
-237.6	R17-HQ 5 ft 34%	0	>10				Limestone 279.0-280.7' - yellowish gray, (5Y 7/2), very fine grained, moderate HCl reaction, medium strong to strong (R3 to R4) No Recovery 280.7-284.0'	R17: 10 minutes
284.0			NR					
285	R18-HQ 5 ft 62%	12	>10	284.0-284.55' - Fracture zone, rough, undulating, multiple intersecting fractures			Limestone 284.0-284.9' - yellowish gray, (5Y 7/2), very fine to fine grained, medium strong to strong (R3 to R4), <1/16" voids over 10% of surface, fossiliferous	R18: 6 minutes
-242.6			>10	284.8' - Bedding plane, 10 deg, rough, undulating			284.9-285.4' - grayish orange pink to yellowish brown, (10YR 6/2 to 10YR 5/4), fine to medium grained, moderate HCl reaction, extremely weak to weak (R0 to R2)	
			>10	285.15' - Fracture, <10 deg, rough, undulating, intersecting fractures			285.4-285.5' - fine to medium grained, moderate HCl reaction	
			>10	285.2' - Fracture, 55 deg, rough, undulating, intersecting fractures			285.5-287.1' - yellowish gray, (5Y 7/2), fine to medium grained, mild HCl reaction, very weak to weak (R1 to R2), voids <1/16" over 20% of surface, trace fossil casts	
			NR	285.25' - Fracture, <10 deg, rough, undulating, intersecting fractures			No Recovery 287.1-289.0'	
289.0	R19-HQ 5 ft 30%	0	>10	285.75' - Fracture or mechanical break, <10 deg, rough, undulating			Limestone 289.0-290.5' - yellowish gray, (5Y 7/2), very fine to medium grained, mild HCl reaction, extremely weak to medium strong (R0 to R3), voids over 15 to 30% of surface (<1/16"), poorly to moderately fossiliferous	R19: 5 minutes
			>10	286.4' - Fracture or mechanical break, <10 deg, rough, undulating			No Recovery 290.5-294.0'	
290				286.61' - Fracture or mechanical break, <10 deg, rough, undulating				
-247.6				286.6' - Fracture or mechanical break, <10 deg, rough, undulating, multiple intersecting fractures				
	R20-HQ 5 ft 38%	10		286.61' - Fracture or mechanical break, <10 deg, rough, undulating			Limestone 294.0-295.9' - yellowish gray, (5Y 8/1), very fine to fine grained, extremely weak to weak (R0 to R2), laminated bedding, <5% voids (1/16") over surface, trace secondary infill on clast inclusion	Driller's Remark: Slow rotation to approx. 400 rpm to achieve better recovery in softer material M. Faurote continues logging
294.0				289.0-290.5' - Fracture zone, rough, undulating, multiple intersecting fractures, rock fragments <4"x1"			No Recovery 295.9-299.0'	
				290.4' - Fracture, rough, undulating, potential healed fractures, intersecting				
295				294.3' - Fracture, 70 deg, rough, undulating				
-252.6				294.6' - Fracture, 70 deg, rough, undulating				
	R20-HQ 5 ft 38%	10	3	294.6-295.0' - Fractures, multiple intersecting fractures, fragments <2"				R20: 5 minutes
			10	295.2' - Bedding plane or mechanical break, <10 deg, smooth to rough, undulating				
			NR	295.3' - Fracture or mechanical break, 60 deg, rough, undulating				
299.0				295.8-295.9' - Fracture zone, rough, undulating, >3 fractures intersect				
300			3	299.35' - Mechanical break or bedding plane, <10 deg, smooth to rough				



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ELEVATION : 42.4 ft (NAVD88)

DRILLING CONTRACTOR : Boart Longyear, Huntsville, AL; Driller: A. Anderson

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ORIENTATION : Vertical

WATER LEVELS : 5.88 ft bgs on 9/13/07

START : 8/16/2007

END : 8/24/2007

LOGGER : P. De Sa'rego, J. Townes, R. Bitely, M. Faurate, C. Sump

DEPTH BELOW SURFACE AND ELEVATION (ft)	CORE RUN LENGTH AND RECOVERY (%)	DISCONTINUITIES			SYMBOLIC LOG	LITHOLOGY	COMMENTS
		RQD (%)	FRACTURES PER FOOT	DESCRIPTION			
				DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS		ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	
-257.6	R21-HQ 5 ft 82%	51	>10	299.45' - Mechanical break or bedding plane, <10 deg, smooth to rough, slickensided		Limestone 299.0-299.3' - grayish orange, (10YR 7/4), very fine grained, mild HCl reaction, extremely weak (R0), trace laminations 299.3-299.35' - olive gray, (5Y 4/1), very fine grained, no HCl reaction, extremely weak (R0) 299.35-301.0' - yellowish gray to light olive gray, (5Y 8/1 to 5Y 6/1), very fine to medium grained, moderate HCl reaction, extremely weak to very weak (R0 to R1), laminated bedding 301.0-303.1' - yellowish gray, (5Y 7/2), very fine to fine grained, mild to moderate HCl reaction, laminated bedding, voids <1/16" over 10% of surface No Recovery 303.1-304.0' Limestone 304.0-305.9' - yellowish gray, (5Y 8/1), mottled colorations with trace organics, very fine grained, moderate HCl reaction, medium strong to strong (R3 to R4), trace voids <1/16", poorly fossiliferous No Recovery 305.9-309.0' Limestone 309.0-312.8' - yellowish gray, (5Y 7/2), very fine to fine grained, moderate HCl reaction, extremely weak to weak (R0 to R2) 309.0-310.8' - very fine grained, mottled laminations 310.8-312.8' - very fine to fine grained, laminated bedding, with voids (<1/16") over 30% of surface No Recovery 312.8-314.0' Limestone 314.0-315.6' - yellowish gray, (5Y 8/1), very fine to medium grained, moderate HCl reaction, extremely weak to weak (R0 to R2), voids <1/16" over 10% of surface No Recovery 315.6-319.0'	SC-1 collected at 302.0-302.8' R21: 7 minutes
			>10	299.7' - Mechanical break or bedding plane, <10 deg, smooth to rough, slickensided			
			1	300.4-300.65' - Fracture zone, rough, undulating, gravel sized fragments <2"			
			0	301.0-301.1' - Fracture zone, rough, undulating, sand sized fragments			
304.0	R22-HQ 5 ft 38%	0	NR	301.5' - Fracture or mechanical break, <10 deg, smooth to rough, undulating			R22: 7 minutes
			>10	301.9-302.1' - Fracture, <10 deg, smooth to rough, undulating, gravel sized fragments <1"			
			>10	302.85' - Fracture or mechanical break, <10 deg, rough, undulating			
			NR	304.0-305.9' - Fracture zone, rough, undulating, gravel sized fragments <2"			
305 -262.6	R23-HQ 5 ft 76%	33	>10	309.0-309.7' - Fracture zone, rough, undulating, gravel sized fragments <2"		R23: 5 minutes	
			>10	310.25-310.35' - Fracture zone, rough, undulating, gravel sized fragments <1"			
			3	310.8, 311.15, 311.55, 311.95, 312.1' - Bedding plane (5), <10 deg, rough, undulating			
			>10	312.3-312.8' - Fracture zone, rough, undulating, gravel sized fragments <1"			
310 -267.6	R24-HQ 5 ft 32%	0	NR	314.0-315.6' - Fracture zone, rough, undulating, gravel sized fragments <3"		R24: 5 minutes	
			>10	314.0-315.6' - Fracture zone, rough, undulating, gravel sized fragments <3"			
			>10	314.0-315.6' - Fracture zone, rough, undulating, gravel sized fragments <3"			
			NR	318.0-320.0' - Fracture zone, rough, undulating, gravel sized fragments <2"			
315 -272.6	R24-HQ 5 ft 32%	0	>10	318.0-320.0' - Fracture zone, rough, undulating, gravel sized fragments <2"		R24: 5 minutes	
			>10	318.0-320.0' - Fracture zone, rough, undulating, gravel sized fragments <2"			
			>10	318.0-320.0' - Fracture zone, rough, undulating, gravel sized fragments <2"			
			NR	318.0-320.0' - Fracture zone, rough, undulating, gravel sized fragments <2"			
319.0	R24-HQ 5 ft 32%	0	>10	318.0-320.0' - Fracture zone, rough, undulating, gravel sized fragments <2"		R24: 5 minutes	
			>10	318.0-320.0' - Fracture zone, rough, undulating, gravel sized fragments <2"			
			>10	318.0-320.0' - Fracture zone, rough, undulating, gravel sized fragments <2"			
			NR	318.0-320.0' - Fracture zone, rough, undulating, gravel sized fragments <2"			
320	R24-HQ 5 ft 32%	0	>10	318.0-320.0' - Fracture zone, rough, undulating, gravel sized fragments <2"		R24: 5 minutes	
			>10	318.0-320.0' - Fracture zone, rough, undulating, gravel sized fragments <2"			
			>10	318.0-320.0' - Fracture zone, rough, undulating, gravel sized fragments <2"			
			NR	318.0-320.0' - Fracture zone, rough, undulating, gravel sized fragments <2"			

ROCK CORE LOG

PROJECT : Progress Energy Florida - COLA Investigation, Levy County Site LOCATION : 1723083.8 N, 458040.4 E (NAD83)

ELEVATION : 42.4 ft (NAVD88) DRILLING CONTRACTOR : Boart Longyear, Huntsville, AL; Driller: A. Anderson

CORING METHOD AND EQUIPMENT : BL300T S/N 1517, mud rotary, HQ tools, HW casing

ORIENTATION : Vertical

WATER LEVELS : 5.88 ft bqs on 9/13/07

START : 8/16/2007

END : 8/24/2007

LOGGER : P. De Sa'rego, J. Townes, R. Bitely, M. Faurote, C. Sump

WATER LEVELS : 3.06 ft bgs on 9/19/07				START : 9/19/2007		END : 9/24/2007		LOGGER : P. De Saeghe, J. Towles, R. Ditley, M. Paulite, C. Smith	
DEPTH BELOW SURFACE AND ELEVATION (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES		SYMBOLIC LOG	LITHOLOGY		COMMENTS		
		R Q D (%)	FRACTURES PER FOOT		DESCRIPTION	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.		
					DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS				
-277.6	R25-HQ 5 ft 30%	0	4		Limestone 319.0-320.5' - yellowish gray, (5Y 8/1), very fine to medium grained, mild to moderate HCl reaction, very weak to weak (R1 to R2) No Recovery 320.5-324.0'				
			NR						
324.0			324.0-326.1' - soil interval		Silty Sand (SM) 324.0-326.1' - yellowish gray, (5Y 7/2), moist, dense, fine to coarse grained, mild HCl reaction, 40 to 60% carbonate sands, 40 to 60% low plasticity carbonate silts No Recovery 326.1-329.0'	Begin drilling at 8:00 on 8/22/07; water level at 3' below ground surface Driller's Remark: No slough in boring, clean to 324' below ground surface Driller's Remark: Moderate to slow advancement rate; very consistent advancement Driller's Remark: Slow rotation rate to approx. 300 rpm to achieve better recovery in softer material R26: 7 minutes			
325 -282.6		NA							
		NA							
	R26-HQ 5 ft 42%	0	NR						
329.0					Sandy Silt (ML) 329.0-331.3' - yellowish gray, (5Y 7/2), dry to moist, very dense, fine to coarse grained, >50% low plasticity carbonate silts, carbonate sands				
330 -287.6			NA						
			NA						
	R27-HQ 5 ft 88%	40	2		Limestone 331.3-333.4' - yellowish gray, (5Y 7/2), very fine to fine grained, moderate HCl reaction, extremely weak to very weak (R0 to R1), trace organic laminations No Recovery 333.4-334.0' No Recovery 334.0--339.0'	R27: 6 minutes			
			2						
			0						
334.0			NR		Driller's Remark: Possible void space; low torque on drill indicating very soft material or no material; no fluid return; fluid return at higher flow rate of approx. 25 gpm and not drilling (approx. 25% circulation)				
335 -292.6	R28-HQ 5 ft 0%	0	NR						
				No Recovery 339.0-342.0'	R28: 7 minutes				
339.0									
340									



PROJECT NUMBER:
338884.FL

BORING NUMBER:
AD-03

SHEET 8 OF 16

ROCK CORE LOG

PROJECT : Progress Energy Florida - COLA Investigation, Levy County Site LOCATION : 1723083.8 N, 458040.4 E (NAD83)

ELEVATION : 42.4 ft (NAVD88) DRILLING CONTRACTOR : Boart Longyear, Huntsville, AL; Driller: A. Anderson

CORING METHOD AND EQUIPMENT : BL300T S/N 1517, mud rotary, HQ tools, HW casing

ORIENTATION : Vertical

WATER LEVELS : 5.88 ft bgs on 9/13/07

START : 8/16/2007

END : 8/24/2007

LOGGER : P. De Sa'rego, J. Townes, R. Bitely, M. Faurate, C. Sump

DEPTH BELOW SURFACE AND ELEVATION (ft)	CORE RUN LENGTH AND RECOVERY (%)	DISCONTINUITIES		SYMBOLIC LOG	LITHOLOGY	COMMENTS
		RQD (%)	DESCRIPTION			
			DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS			
-297.6	R29-HQ 5 ft 34%	0	NR			Driller's Remark: Clogging in core barrel; tag total depth at 341' below ground surface with cutting bit pulled; core barrel is open, but rock fragments may be rolling under the bit causing no recovery or possible void; felt rock fragment break loose or move out of the way; 2' of recovery from 342 to 344' R29: 6 minutes
			342.0-343.7' - Fracture zone, rough, undulating, trace staining, silt material, fractures in rock fragments		Sandy Silt (ML) 342.0-343.4' - yellowish gray, (5Y 7/2), moist to wet, soft to stiff, fine to coarse grained, moderate HCl reaction 343.4-343.7' - bluish gray, yellowish gray, (5B 7/1, 5Y 7/2), moderate HCl reaction, weak (R2) No Recovery 343.7-344.0' Silt (ML) 344.0-344.3' - brown to orange gray, carbonate grains	
344.0			NA			
			NA			
			NR			
345		7	344.3-344.4' - Fracture zone, vertical and horizontal, multiple fractures on and through the zone, broken fragments			
-302.6		>10	345.5-345.75' - Fracture zone, fragments 1/4" to 3/4", in transition between lithologic units			
	R30-HQ 5 ft 74%	32	3		Limestone 344.3-345.7' - very fine to coarse grained, strong HCl reaction, very weak (R1), bedded at 345.7' 345.7-347.4' - light gray, (N8), very fine grained, strong HCl reaction, medium strong (R3), pyrite mottling	R30: 7 minutes
			346.1' - Mechanical break 346.4' - Mechanical break		Silt (ML) 347.4-347.7' - compact, carbonate No Recovery 347.7-349.0' Limestone 349.0-350.5' - light gray to white, (N8 to N9), very fine grained, strong HCl reaction, medium strong (R3) 350.5-352.0' - yellowish gray, (5Y 8/1), very fine grained, strong HCl reaction, very weak (R1), laminated bedding, trace organics, trace pyrite 352.0-354.0' - white, light gray, yellowish gray, (N9, N8, 5Y 8/1), very fine grained, strong HCl reaction, weak (R2), trace iron, pyrite	
			NR			
			NR			
349.0			NR			
350		>10	349.5' - Fracture, 65 deg, planar to undulating			
-307.6		>10	349.6-350.4' - Fracture zone, heavily fractured, fragmented			
	R31-HQ 5 ft 98%	56	3			R31: 6 minutes
			350.7-351.1' - Bedding plane, horizontal, planar, silt to sand horizon between weak rock			
			351.7' - Mechanical break, 0-10 deg, rough, undulating to planar			
			352.0' - Mechanical break, 0-10 deg, rough, undulating to planar			
			352.6' - Mechanical break, 0-10 deg, rough, undulating to planar			
			353.05' - Mechanical break, 0-10 deg, rough, undulating to planar			
			353.55' - Mechanical break, 0-10 deg, rough, undulating to planar			
			354.4' - Bedding plane, horizontal, smooth, undulating, light to moderate organic		Sandy Silt (ML) 354.0-354.4' - pinkish gray, (5YR 8/1), carbonate derived, friable Limestone 354.4-354.8' - pale orange, (10YR 8/2), strong HCl reaction, weak (R2), <10% voids <1/16"	R32: 8 minutes
			354.6' - Bedding plane, horizontal, smooth, undulating, light to moderate organic staining		Silt (ML) 354.8-356.0'	
			354.8-356.4' - Fracture zone, 0-80 deg, organic staining, fragments 1/4" x 1/2"		Limestone 356.0-358.2' - pale orange, (10YR 8/2), very fine grained, strong HCl reaction, weak to medium strong (R2 to R3), 15-18% voids <1/8"	
			357.0-357.5' - Fracture zone, 0-75 deg, multiple fragments 1/2" x 1/2"			
			357.5-358.3' - Fracture zone or bedding plane, 0-60 deg, random fractures, multiple sizes			
			358.4' - Fractures, 75 deg and 60 deg, smooth, intersecting			
			359.4' - Bedding plane, rough, undulating			
359.0						
360						



PROJECT NUMBER:
338884.FL

BORING NUMBER:
AD-03

SHEET 9 OF 16

ROCK CORE LOG

PROJECT : Progress Energy Florida - COLA Investigation, Levy County Site LOCATION : 1723083.8 N, 458040.4 E (NAD83)

ELEVATION : 42.4 ft (NAVD88) DRILLING CONTRACTOR : Boart Longyear, Huntsville, AL; Driller: A. Anderson

CORING METHOD AND EQUIPMENT : BL300T S/N 1517, mud rotary, HQ tools, HW casing

ORIENTATION : Vertical

WATER LEVELS : 5.88 ft bgs on 9/13/07

START : 8/16/2007

END : 8/24/2007

LOGGER : P. De Sa'rego, J. Townes, R. Bitely, M. Fauroute, C. Sump

DEPTH BELOW SURFACE AND ELEVATION (ft)	CORE RUN LENGTH AND RECOVERY (%)	DISCONTINUITIES			SYMBOLIC LOG	LITHOLOGY	COMMENTS
		RQD (%)	FRACTURES PER FOOT	DESCRIPTION			
				DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS			
-317.6	R33-HQ 5 ft 82%	50	>10	359.95' - Bedding plane, rough, undulating 360.2-360.4' - interbedded, generally horizontal 360.95' - Mechanical break		Limestone 358.2-361.1' - pale orange, (10YR 8/2), very fine grained, weak to medium strong (R2 to R3), 20% voids (<1/16"), fossiliferous 361.1-361.3' - very fine grained, transition zone, irregular, convoluted surface, laminar, horizontal bedding, organic interbedding, rip-up clasts 361.3-363.1' - yellowish gray, (5Y 8/1), trace mottling, very fine to medium grained, moderate to strong HCl reaction, weak (R2), fossil casts (1/16 to 3/8") over 10 to 15% of the surface, faint bedding No Recovery 363.1-364.0' Limestone 364.0-364.25' - pale orange, (10YR 8/2), trace mottling, very fine grained, moderate to strong HCl reaction, weak (R2), fossil casts (1/16 to 3/8") over 10 to 15% of the surface, faint bedding 364.25-364.9' - pale orange, (10YR 8/2), very fine grained, strong HCl reaction, medium strong (R3), granular, voids (<1/16") over 15% of surface, cavities (up to 1/2 to 1/4") over 10% of surface (fossil molds) 364.9-366.15' - grayish orange, (10YR 7/4), very fine grained, strong to very strong HCl reaction, medium strong (R3), trace organics as laminae at top of interval 366.15-368.2' - white, pale orange, (N9, 10YR 8/2), very fine grained, medium strong to strong (R3 to R4), 20% burrows, molds, and 5% voids (<1/16"), trace organics 368.2-368.6' - pale orange, (10YR 8/2), very fine grained, very weak to weak (R1 to R2), granular, 1/8" organic layer at 368.3', few voids, few cavities Limestone 369.4-370.5' - white to pale orange, (N9 to 10YR 8/2), very fine grained, strong HCl reaction, medium strong (R3), trace organics, burrows and molds create cavities to 1/2", 10% voids (<1/16") 370.5-372.7' - yellowish gray, (5Y 7/2), very fine grained, strong HCl reaction, medium strong to strong (R3 to R4), 20 to 25 % voids (<1/16") and fossil molds and casts No Recovery 372.7-374.0'	SC-2 collected at 361.75- 362.65' R33: 6 minutes
364.0			3	361.5' - Fracture or bedding plane, horizontal and vertical, rough, undulating 361.6' - Fracture or bedding plane, horizontal and vertical, rough, undulating 361.7' - Fracture or bedding plane, horizontal and vertical, rough, undulating 362.7-363.1' - Fracture zone, smooth to rough, undulating, multiple fragments, no visible orientations			
365 -322.6			>10	364.25-364.45' - Bedding plane, smooth, undulating 364.7' - Fracture, 85 deg and vertical, rough, undulating 364.9' - Bedding plane, horizontal, smooth, contact, with 45 deg fracture 366.2' - Bedding plane, rough, contact very irregular 366.9-368.0' - Fracture zone, smooth, undulating, irregular contact with uneven surfaces			
369.0			NR	368.7' - Bedding plane, horizontal			
370 -327.6	R34-HQ 5 ft 100%	52	7	369.35-369.8' - Fracture zone or bedding plane, 0-90 deg, smooth to rough, planar to undulating, iron oxides and trace organics 370.1' - Fractures, horizontal and 8 deg, rough, undulating 370.6-370.7' - Fracture zone		R34: 6 minutes	
			0	371.5' - Mechanical break 371.9' - Mechanical break			
			2	372.6' - Mechanical break			
			>10	374.0-374.3' - Fracture zone, fragments 1/4" to 3/4" 374.3' - Bedding plane, horizontal and 5 deg, smooth, undulating 374.4' - Bedding plane, horizontal and 5 deg, smooth, undulating 374.6' - Bedding plane, horizontal and 5 deg, smooth, undulating 374.85' - Fracture, 20 deg, rough, undulating 374.9-375.3' - Fracture zone, multiple orientations, fragments are 1/2"x1" to 2"x1" 375.55' - Mechanical break 375.7-375.95' - Fracture zone 376.55' - Fracture zone, horizontal and 25 deg, rough, undulating 376.6-376.8' - Fracture zone, trace iron oxide staining			
374.0	R35-HQ 5 ft 74%	44	1			R35: 5 minutes	
			1				
			NR				
375 -332.6			>10				
	R36-HQ 5 ft 66%	12	>10			R36: 7 minutes	
			>10				
			>10				
379.0			NR				
380			2				



PROJECT NUMBER:

338884.FL

BORING NUMBER:

AD-03

SHEET 10 OF 16

ROCK CORE LOG

PROJECT : Progress Energy Florida - COLA Investigation, Levy County Site LOCATION : 1723083.8 N, 458040.4 E (NAD83)

ELEVATION : 42.4 ft (NAVD88)

DRILLING CONTRACTOR : Boart Longyear, Huntsville, AL; Driller: A. Anderson

CORING METHOD AND EQUIPMENT : BL300T S/N 1517, mud rotary, HQ tools, HW casing

ORIENTATION : Vertical

WATER LEVELS : 5.88 ft bgs on 9/13/07

START : 8/16/2007

END : 8/24/2007

LOGGER : P. De Sa'rego, J. Townes, R. Bitely, M. Fauroute, C. Sump

DEPTH BELOW SURFACE AND ELEVATION (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES			SYMBOLIC LOG	LITHOLOGY	COMMENTS
		R Q D (%)	FRACTURES PER FOOT	DESCRIPTION		ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
				DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS			
-337.6	R37-HQ 5 ft 82%	18	5	380.1, 380.2, 380.45' - Bedding plane (3), horizontal		Limestone 374.0-374.45' - grayish orange, (10YR 7/4), fine to medium grained, moderate HCl reaction, very weak (R1), laminated bedding, organic interbedding 374.45-377.3' - yellowish gray, (5Y 8/2), very fine grained, moderate HCl reaction, weak to medium strong (R2 to R3), 25 to 35 % burrows, cavities (molds), 5 to 10% voids (<1/16"), locally heavily fractured No Recovery 377.3-379.0'	R37: 6 minutes
4			380.8, 380.9' - Mechanical break (2) 381.05' - stepped fracture over 3/4", angular 381.4' - Bedding plane, smooth, undulating, stepped				
4			381.7, 381.9, 382.15, 382.6' - Bedding plane (4), smooth, undulating 382.7, 382.9' - Bedding plane (2), rough, undulating				
NR							
384.0							
385	R38-HQ 5 ft 96%	39	8	384.2, 384.4, 384.5, 384.7' - Bedding plane or mechanical break (4)		Limestone 379.0-381.75' - grayish orange, (10YR 7/4), very fine to fine grained, strong HCl reaction, very weak to weak (R1 to R2), nonreactive granular material, localized laminated bedding with trace organics 381.0-381.3' - extremely weak (R0), friable, dissembles in water 381.75-383.1' - yellowish gray, (5Y 8/1), very fine grained, strong HCl reaction, medium strong (R3), 10% voids (<1/8") 382.7-383.1' - very weak to weak (R1 to R2) No Recovery 383.1-384.0'	SC-3 collected at 387.8-388.8' R38: 7 minutes
-342.6			6	384.9' - mid point of vertical fracture along center of core			
			>10	385.05, 385.2, 385.7, 385.9' - rough, multiple fragments, angular to spike random angles 386.0' - Fracture, 20 deg 386.6-387.5' - Fracture zone, multiple fragments up to 2", crosses lithology change			
			>10				
			0	387.8' - Bedding plane, 10 deg, smooth, undulating			
389.0			NR				
390	R39-HQ 5 ft 94%	27	4	389.05' - Mechanical break 389.4-389.5' - Bedding plane, horizontal and 5 deg, smooth, undulating, silt/clay infill		Limestone 384.0-384.5' - yellowish gray, (5Y 7/2), very fine grained, very strong HCl reaction, extremely weak (R0) 384.5-387.0' - grayish orange, (10YR 7/4), very fine grained, strong HCl reaction, medium strong (R3), 20% <1/16" voids, trace organics, cavities to 3/4" 387.0-388.8' - light gray, light blue gray, (N7, 5B 7/1), very fine to fine grained, strong HCl reaction, weak to medium strong (R2 to R3), 25% fossil casts (1/16 to 9/16" max.) of forams, pelecypods, and echinoderms No Recovery 388.8-389.0'	R39: 8 minutes
-347.6			2	390.5-391.5' - Fracture zone, fragments to 2", subangular to angular, 40-60% infill <1"			
			2	391.5-391.8' - Bedding plane, horizontal, smooth, undulating, rock partings on both ends			
			1	391.8-392.6' - Fracture zone, fragments to 1-1/2", subangular to angular			
			>10	392.9' - Bedding plane, smooth, undulating, contact rock with silt/sand 393.4-393.7' - Fracture zone, fine infill, angular fragments to 1"			
394.0			NR				
395	R40-HQ 5 ft 36%	0	>10	394.0-394.55' - Fracture zone, fractures from horizontal to vertical, immediately below 3/8" gravel sized fragments, clay/silt rock fragments to end of run		No Recovery 388.8-389.0' Limestone 389.0-393.7' - grayish orange, very pale orange (392.0'), (10YR 7/4, 10YR 8/2), strong HCl reaction, extremely weak to very weak (R0 to R1), fracture zone, breccia begins at 390.5', 15-18% voids (<1/16") in rock fragments No Recovery 393.7-394.0'	R40: 6 minutes
-352.6			>10				
			NR				
399.0							
400			1	399.65' - Bedding plane, smooth, horizontal		No Recovery 395.8-399.0'	



PROJECT NUMBER:

338884.FL

BORING NUMBER:

AD-03

SHEET 11 OF 16

ROCK CORE LOG

PROJECT : Progress Energy Florida - COLA Investigation, Levy County Site LOCATION : 1723083.8 N, 458040.4 E (NAD83)

ELEVATION : 42.4 ft (NAVD88)

DRILLING CONTRACTOR : Boart Longyear, Huntsville, AL; Driller: A. Anderson

CORING METHOD AND EQUIPMENT : BL300T S/N 1517, mud rotary, HQ tools, HW casing

ORIENTATION : Vertical

WATER LEVELS : 5.88 ft bgs on 9/13/07

START : 8/16/2007

END : 8/24/2007

LOGGER : P. De Sa'rego, J. Townes, R. Bitely, M. Faurote, C. Sump

DEPTH BELOW SURFACE AND ELEVATION (ft)	CORE RUN LENGTH AND RECOVERY (%)	DISCONTINUITIES			SYMBOLIC LOG	LITHOLOGY	COMMENTS
		RQD (%)	FRACTURES PER FOOT	DESCRIPTION			
				DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS		ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	
-357.6	R41-HQ 5 ft 88%	67	2	400.0' - Fracture, horizontal, rough, undulating		Limestone 399.0-399.25' - very pale orange, (10YR 8/2), moderate HCl reaction, very weak (R1), 30% voids (<1/8") (fossil molds), sand-sized grains, fossil fragments 399.25-403.4' - yellowish gray, (5Y 8/1), mild to strong HCl reaction, weak (R2), trace iron oxides on shell casts, 15% <1/16" voids with sporadic fossil casts to 1/4" No Recovery 403.4-404.0'	SC-4 collected at 401.5- 402.65' R41: 6 minutes
			1	400.1' - Fracture, vertical, rough, undulating 401.0' - Mechanical break			
			1				
			1	402.7' - Fracture, 45 deg, planar			
404.0	R42-HQ 5 ft 99%	86	NR			Limestone 404.0-408.95' - grayish orange pink, (5YR 7/2), fine to medium grained, moderate HCl reaction, very weak (R1), HCl reaction delayed, brecciated at 410.2-410.35'	R42: 6 minutes
			2	404.1' - Bedding plane, 5 deg, undulating			
405 -362.6			1	404.85' - Fracture, 15 deg, smooth, planar 405.05' - Bedding plane or mechanical break, core contacts spun against each other			
			1	406.65' - Bedding plane, horizontal and 5 deg, smooth, undulating 407.05' - Bedding plane, 10 deg, smooth, planar 407.75' - Mechanical break			
			1				
409.0	R43-HQ 5 ft 60%	14	NR	408.85' - Mechanical break, probably when breaking core run off bottom		No Recovery 408.95-409.0' Limestone 409.0-411.3' - Same as 404.0-408.95'	R43: 7 minutes
			>10	409.7-410.0' - Mechanical break, undulating, heavily fractured near vertical planes, probably mechanically induced			
410 -367.6			>10	410.3' - Fracture, 40 deg and 45 deg, zone infilled with 1/8" or less rock fragments in silt matrix			
			>10	410.6-412.0' - Fracture zone, horizontal and vertical, multiple fragments of varying size ranging to 3"x1-1/2"x1", organic (coatings) on planar surfaces and lining casts from 411.3-412'			
			NR				
414.0	R44-HQ 5 ft 89%	57	5	414.15' - Bedding plane, horizontal, smooth, planar		Limestone 414.0-414.6' - very pale orange, (10YR 5/2), very fine grained, very strong HCl reaction, weak (R2), 5% (<1/16") voids on surface, trace organics Conglomerate 414.6-414.8' - strong HCl reaction, variegated, silica gravel up to 3/8", limestone grains Limestone 414.8-418.45' - very pale orange, (10YR 8/2), very fine grained, strong HCl reaction, weak to medium strong (R2 to R3), 5 to 20% (<1/16") voids, fossil molds, some including cavities up to 1/2", trace organic material No Recovery 418.45-419.0'	R44: 8 minutes
415 -372.6			3	414.4' - Fracture, vertical and 60 deg 414.6' - Bedding plane, rough, undulating 414.95, 415.2, 415.5, 415.8' - Mechanical break (4)			
			2	416.4' - Mechanical break, horizontal			
			2	416.8' - Fracture, 65 deg, planar to undulating, 1/16" separation 417.15, 417.25' - Fracture (2), horizontal and 80 deg, 1/16" to 1/16" separation			
			1				
			NR	418.4' - Bedding plane, smooth, undulating			
419.0			1	419.2' - Bedding plane, probable organic stain and/or infill			
420							



PROJECT NUMBER:

338884.FL

BORING NUMBER:

AD-03

SHEET 12 OF 16

ROCK CORE LOG

PROJECT : Progress Energy Florida - COLA Investigation, Levy County Site LOCATION : 1723083.8 N, 458040.4 E (NAD83)

ELEVATION : 42.4 ft (NAVD88)

DRILLING CONTRACTOR : Boart Longyear, Huntsville, AL; Driller: A. Anderson

CORING METHOD AND EQUIPMENT : BL300T S/N 1517, mud rotary, HQ tools, HW casing

ORIENTATION : Vertical

WATER LEVELS : 5.88 ft bgs on 9/13/07

START : 8/16/2007

END : 8/24/2007

LOGGER : P. De Sa'rego, J. Townes, R. Bitely, M. Faurate, C. Sump

DEPTH BELOW SURFACE AND ELEVATION (ft)	CORE RUN LENGTH AND RECOVERY (%)	DISCONTINUITIES		SYMBOLIC LOG	LITHOLOGY	COMMENTS
		RQD (%)	FRACTURES PER FOOT			
			DESCRIPTION			
			DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS		ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-377.6	R45-HQ 5 ft 96%	65	1	419.75' - Mechanical break	Peat 419.0-419.2' - brownish black, (5YR 2/1), malleable	R45: 9 minutes
			2	421.3' - Fracture, vertical, smooth, undulating 421.7-422.5' - Bedding plane or fracture zone, rough, undulating, irregular contact with uneven surfaces	Limestone 419.2-421.8' - very pale orange, (10YR 8/2), very fine grained, strong HCl reaction, medium strong (R3), fossil mold rich, 25% (<1/16") voids, trace organics	
			>10	423.1' - Mechanical break 423.4-423.8' - Fracture zone, horizontal and vertical, rough, undulating, may be extensively broken from/by breaking core for retrieval	421.8-423.8' - very pale orange to pale yellowish brown, (10YR 8/2 to 10YR 6/2), very fine grained, moderate to strong HCl reaction, medium strong to weak (R3 to R2), voids (<1/16") over 10-15% of surface, 3-8% cavities (1" x 1/4"), weak (R2) rock (last 1' of interval), trace organics, laminar interbeds with fossil coatings	
			NR	424.9' - Mechanical break	No Recovery 423.8-424.0' Limestone 424.0-428.3' - Same as 421.8-423.8'	
425 -382.6	R46-HQ 5 ft 100%	86	1	424.9' - Mechanical break		R46: 8 minutes Driller's Remark: Lost circulation at 428.2-429.3'
			2	425.4' - Fracture, rough, undulating, angular 425.65' - Bedding plane, 5 deg and 15 deg, undulating, organic infilling		
			4	426.45' - Bedding plane or mechanical break 426.5' - Mechanical break, 10 deg and vertical, undulating, short		
			2	426.7' - Bedding plane, trace organic staining, open to 1"		
	R47-HQ 5 ft 98%	50	3	427.3' - Bedding plane, rough, undulating, open channel interface 427.6' - Fracture, rough, undulating, 1/16" opening 428.05, 428.2, 428.7' - Bedding plane (3), organic infill, stains	428.3-433.3' - very pale orange, (10YR 8/2), very fine grained, moderate to strong HCl reaction, very weak (R1), voids (1/16"-1/8") over <10% of surface, 1/16"-3/16" fossil casts, at 428.3-429.0' vertical channel-like voids (1/2"-1-1/2" wide)	SC-5 collected at 430.5-431.55'
430 -387.6			3	429.2, 429.45, 429.8, 430.1' - Bedding plane (4), smooth, planar to undulating		
			1	430.2' - Fracture, organic or iron oxide healed, 1/16"		
			1	430.35, 430.5, 431.55, 434.55, 434.7' - Bedding plane (5), smooth, planar to undulating		
	R48-HQ 5 ft 88%	22	2	432.3' - Mechanical break	Peat 433.3-433.9' - black to dark brown black, (N1 to 5YR 2/1), laminated to thin bedding, organic and silt	R47: 9 minutes SC-7S collected at 434.0-434.25'
434.0			NR		No Recovery 433.9-434.0' Peat 434.0-434.65' - Same as 433.3-433.9	
435 -392.6			2	434.55, 434.7' - Bedding plane, between rock and clay or organic detritus	Limestone 434.65-435.7' - limestone fragments, variegated, random size and type in variable matrix, trace to some organics	
			1	435.65' - Bedding plane, rough, undulating	435.7-436.5' - yellowish gray, (5Y 7/2), very fine grained, moderate to strong HCl reaction, very strong (R5), voids (<1/16") over 5-10% of surface, angular cavities (1/2 to 3/4") and open	
	R48-HQ 5 ft 88%	22	3	436.2' - Bedding plane, horizontal and 7 deg, rough, undulating, fossil cast openings		R48: 12 minutes
			>10	436.4' - Bedding plane, smooth, undulating, rock with silica rich gravel		
			1	436.75' - Fracture, 35 deg and vertical, smooth, filled with carbonate fragments and silty clay		
	R48-HQ 5 ft 88%	22	NR	436.9-437.7' - Fracture zone, multiple fragments up to 1-1/2" some organic infill and stain		
439.0			1	438.0' - Mechanical break		
440						



PROJECT NUMBER:

338884.FL

BORING NUMBER:

AD-03

SHEET 13 OF 16

ROCK CORE LOG

PROJECT : Progress Energy Florida - COLA Investigation, Levy County Site LOCATION : 1723083.8 N, 458040.4 E (NAD83)

ELEVATION : 42.4 ft (NAVD88)

DRILLING CONTRACTOR : Boart Longyear, Huntsville, AL; Driller: A. Anderson

CORING METHOD AND EQUIPMENT : BL300T S/N 1517, mud rotary, HQ tools, HW casing

ORIENTATION : Vertical

WATER LEVELS : 5.88 ft bgs on 9/13/07

START : 8/16/2007

END : 8/24/2007

LOGGER : P. De Sa'rego, J. Townes, R. Bitely, M. Faurate, C. Sump

DEPTH BELOW SURFACE AND ELEVATION (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES			SYMBOLIC LOG	LITHOLOGY	COMMENTS
		R Q D (%)	FRACTURES PER FOOT	DESCRIPTION		ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-397.6	R49-HQ 5 ft 94%	42	3	439.9, 440.5, 441.0' - Mechanical break (3)		Peat 436.5-436.6' - brownish black, (5YR 2/1), platy, malleable, parting tendencies, HCl reaction on parting surfaces	R49: 10 minutes
			4	441.25, 441.4' - Bedding plane (2), rough, planar, 1/16" open 441.6' - Bedding plane, 60 deg, rough, planar, 1/16" open, planar fracture with organic material as sporadic blebs 442.2-444.0' - Fracture zone, very strongly broken rock fragments in silty sand or sandy silt		Conglomerate 436.6-436.95' - strong HCl reaction, extremely weak (R0), variegated, limestone fragments (1/2"x3/8") and silica grains (up to 5/16"), trace organics, angular silica	
			>10				
			>10				
444.0			NR			Limestone 436.95-437.5' - grayish orange, (10YR 7/4), very fine grained, moderate HCl reaction, medium strong (R3), thin bedding, 5 to 10% discontinuous organic stringers and blebs 437.5-437.7' - very pale orange, (10YR 8/2), very fine grained, strong HCl reaction, extremely weak (R0), laminated bedding, organic partings, undulant to scour like bedding 437.7-438.4' - moderate orange pink, (5YR 8/4), very fine grained, mild HCl reaction, weak (R2), voids (1/16") over <5% of surface, trace organics, fossil molds infilled, recrystallized carbonate minerals	
445	R50-HQ 5 ft 92%	8	2	444.6, 444.95' - Bedding plane (2), rough, stepped to undulating, fragmented separations 445.3' - Fracture, 75 deg, rough, irregular, trace organics 446.1-446.3' - Fracture, vertical, multiple small fractures throughout			R50: 8 minutes
-402.6			2				
			>10				
			>10				
			>10				
			NR				
449.0			>10	449.0-450.1' - Fracture zone, random orientations, fragments to 2-1/2" x 2"			
450	R51-HQ 5 ft 52%	8	>10	450.6' - Fracture, 70 deg, rough, planar 450.7-454.0' - Bedding plane or fracture zone, smooth, undulating		No Recovery 438.4-439.0' Limestone 439.0-441.25' - yellowish gray, (5Y 7/2), very fine grained, very strong HCl reaction, very strong (R5), 5-10% blebs and stringers of organic material, voids (<1/8") over 5% of surface, 1-1/2 x 1/2" cavities, lined or partially lined with calcite	R51: 13 minutes
-407.6			>10				
			>10				
			NR				
454.0			>10	454.0-454.6' - Fracture zone			
455	R52-HQ 5 ft 58%	20	>10	454.8, 454.95' - Fracture (2), 15 deg and 30 deg, rough, undulating, recrystallized 455.15, 455.6' - Bedding plane (2), smooth, planar 455.7' - Fracture, 75 deg, undulating to planar		Limestone 441.5-443.7' - pale brown to pale yellowish brown, (5Y 5/2 to 10YR 6/2), moderate HCl reaction, extremely weak to very weak (R0 to R1), limestone fragments, trace organics No Recovery 443.7-444.0' Peat 444.0-444.1' - black, (N1), amorphous	R52: 12 minutes
			2				
			>10				
			NR				
459.0			>10	457.2-459.0' - Bedding plane or fracture zone, horizontal, smooth, undulating			
460			>10	459.0-460.0' - Fracture zone, fragments to 3"x2"x1"		Limestone 444.1-448.6' - light brown, (5YR 5/6), very fine to fine grained, mild to moderate HCl reaction, very weak to strong (R1 to R4), voids (<1/8") over 15% of surface No Recovery 448.6-449.0'	



PROJECT NUMBER:

338884.FL

BORING NUMBER:

AD-03

SHEET 14 OF 16

ROCK CORE LOG

PROJECT : Progress Energy Florida - COLA Investigation, Levy County Site LOCATION : 1723083.8 N, 458040.4 E (NAD83)

ELEVATION : 42.4 ft (NAVD88)

DRILLING CONTRACTOR : Boart Longyear, Huntsville, AL; Driller: A. Anderson

CORING METHOD AND EQUIPMENT : BL300T S/N 1517, mud rotary, HQ tools, HW casing

ORIENTATION : Vertical

WATER LEVELS : 5.88 ft bgs on 9/13/07

START : 8/16/2007

END : 8/24/2007

LOGGER : P. De Sa'rego, J. Townes, R. Bitely, M. Faurate, C. Sump

DEPTH BELOW SURFACE AND ELEVATION (ft)	CORE RUN LENGTH AND RECOVERY (%)	DISCONTINUITIES		SYMBOLIC LOG	LITHOLOGY	COMMENTS
		RQD (%)	DESCRIPTION			
			DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS			
-417.6	R53-HQ 5 ft 84%	0	5		Limestone 449.0-451.5' - yellowish gray, (5Y 7/2), very fine grained, mild to very strong HCl reaction, strong to very strong (R4 to R5), voids (<1/8") over 10% of surface No Recovery 451.5-454.0'	R53: 14 minutes
			>10		Peat 454.0-454.1' - brown black, (5YR 2/1)	
			>10		Limestone 454.1-456.9' - light brown to pale yellowish brown, (5YR 6/4 to 10YR 6/2), very fine grained, mild to very strong HCl reaction, very strong (R5), voids (<1/16") over 5-8% of surface, trace cavities (1/2" x 1/4"), trace organics No Recovery 456.9-459.0'	
464.0			2		Silt (ML) 459.0-459.2' - with subrounded gravel to 1/2"	
465	R54-HQ 5 ft 86%	17	2		Limestone 459.2-461.8' - moderate yellow brown, (10YR 5/4), very fine to fine grained, mild to strong HCl reaction, very weak to weak (R1 to R2), thin bedding, voids (<1/16") over 10-15% of surface	R54: 13 minutes
-422.6			>10		Fine Sand (SP) 461.8-462.0' - dusky yellow, (5Y 6/4), carbonate	
			>10		Limestone 462.0-462.75' - moderate yellow brown, (10YR 5/4), very fine to fine grained, mild to strong HCl reaction, very weak to weak (R1 to R2), thin bedding, voids (<1/8") over 10-15% of surface	
			>10		Silty Sand (SM) 462.75-463.0' - very fine grained, carbonate	
469.0	R55-HQ 5 ft 90%	31	NR		Limestone 463.0-463.2' - yellowish gray, (5Y 7/2), very fine grained, moderate HCl reaction, very weak (R1), small blebs of black organics throughout No Recovery 463.2-464.0'	R56: 9 minutes
			2		Limestone 464.0-464.65' - pale reddish brown, (10R 5/4), very fine grained, moderate HCl reaction, strong (R4), voids (<1/16") over 5% of surface	
470			5		Limestone 464.65-466.1' - grayish orange, (10YR 7/4), very fine grained, delayed mild HCl reaction, medium strong (R3), thin bedding, irregular bedding	
-427.6			>10			
	R56-HQ 5 ft 94%	24	4			
			>10			
474.0			3			
			3			
475	R56-HQ 5 ft 94%	24	2			
-432.6			NR			
			>10			
479.0			>10			
480						



PROJECT NUMBER: 338884.FL	BORING NUMBER: AD-03	SHEET 15 OF 16
ROCK CORE LOG		

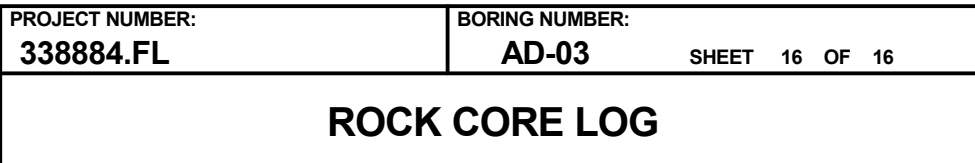
PROJECT : Progress Energy Florida - COLA Investigation, Levy County Site LOCATION : 1723083.8 N, 458040.4 E (NAD83)

ELEVATION : 42.4 ft (NAVD88) DRILLING CONTRACTOR : Boart Longyear, Huntsville, AL; Driller: A. Anderson

CORING METHOD AND EQUIPMENT : BL300T S/N 1517, mud rotary, HQ tools, HW casing ORIENTATION : Vertical

WATER LEVELS : 5.88 ft bgs on 9/13/07 START : 8/16/2007 END : 8/24/2007 LOGGER : P. De Sa'rego, J. Townes, R. Bitely, M. Fauroute, C. Sump

WATER LEVELS : 3.06 ft bgs on 9/13/07		START : 9/12/2007		END : 9/24/2007		LOGGERS : P. De Saeghe, J. Towles, R. Biley, M. LaRue, C. Smith		
DEPTH BELOW SURFACE AND ELEVATION (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES				SYMBOLIC LOG	LITHOLOGY	COMMENTS
		R Q D (%)	FRACTURES PER FOOT	DESCRIPTION				
				DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS				
-437.6	R57-HQ 5 ft 74%	26	>10	478.15' - Fracture, 60 deg, smooth, planar 478.35' - Mechanical break 479.0-481.0' - Fracture zone, 60 deg, random fragments 1/2 to 2", 480.7-481.6' is single fragment with fracture 481.0-481.3' - Fracture zone, random angles, sizes from 1/4" to 2", average about 3/8" 482.2' - Bedding plane, 0-5 deg, smooth, undulating			Limestone 466.1-468.3' - dusky yellow, (5Y 6/4), very fine to medium grained, mild to moderate HCl reaction, extremely weak to strong (R0 to R4), granular, voids (<1/16") over 18-20% of surface No Recovery 468.3-469.0' Limestone 469.0-470.15' - Same as 466.1-468.3' 470.15-471.5' - light brown, (5YR 6/4), very fine grained, moderate to strong HCl reaction, weak (R2), laminated to very thin bedding, black beds, lenticels and lenses, at 470.45' and 471.0' beds to 1/4" 471.5-482.25' - light brown, (5YR 5/6), very fine to fine grained, weak to very strong HCl reaction, very weak to medium strong (R1 to R3) No Recovery 473.7-474.0' Limestone 475.2-475.8' - limestone fragments in carbonate silt, fracture or cavity infill, fragments subangular to subrounded, 15% voids (<1/8") and fossil molds (up to 3/8") Breccia 477.0-477.6' - sand and silt matrix No Recovery 478.7-479.0'	Driller's Remark: Lost circulation on this run, water column dropped to 50' below top of casing R57: 6 minutes
484.0			>10					
			0					
			1					
	R58-HQ 5 ft 95%	43	NR	484.3' - Mechanical break, 15 deg, smooth, undulating 484.55' - Mechanical break, 15 deg, smooth, undulating 484.75' - Bedding plane, 30 deg, smooth, undulating 485.8' - Mechanical break 486.2' - Fracture, edges do not match, could be up to 0.3' separation 486.7' - Mechanical break or bedding plane, smooth, undulating 487.6-488.3' - Fracture zone, fragments from 1/8" to 1" 488.4' - Fracture, 65 deg, rough, planar, flat			Driller's Remark: Lost circulation in large cavity where the two opposing fragments do not match indicating the cavity exceeds the apparent volume R58: 10 minutes	
485			3					
-442.6			1					
			3					
			>10					
			>10					
489.0	R59-HQ 5 ft 82%	19	NR	489.05, 489.35, 489.5, 489.6' - Bedding plane (4), smooth, flat 489.75, 489.85' - Bedding plane (2), 65 deg, rough, planar 489.9, 490.0, 490.15, 490.3, 490.6, 490.85, 491.05, 491.3, 491.5, 491.68, 491.9' - Bedding plane (11), smooth, flat			SC-6 collected at 492.2-493.15' R59: 10 minutes	
490			9					
-447.6			6					
			5					
			1					
	R60-HQ 6 ft 92%	62	NR	492.15' - Fracture, 20 deg, rough/smooth, undulating				
494.0			2					
			4					
495			2					
-452.6			2					
			2					
			1					
500	500.0		NR	494.6' - Fracture, 15 deg, smooth, undulating 494.9, 495.0, 495.15, 495.3, 495.9' - Fracture (5), horizontal and 10 deg, smooth, undulating 496.1' - Bedding plane, horizontal, smooth, planar, lithology change 496.5' - Mechanical break 497.5' - Fracture, rough, planar, angular, stepped 497.95' - Fracture, 55 deg, rough, planar, gently arcuate 498.4' - Fracture, horizontal and 20 deg, rough, irregular 498.75' - Fracture, 45 deg, rough, planar				



LOGGER : P. De Sa'rego, J. Townes, R. Bitely, M. Faurote, C. Sump

WATER LEVEL: 606 R bgs on 8/19/07 START: 10/19/2007 END: 02/12/07 LOGGER: J. DeCaraga, S. Thomas, R. Brey, M. Fardis, C. Sam							
DEPTH BELOW SURFACE AND ELEVATION (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES		SYMBOLIC LOG	LITHOLOGY	COMMENTS	
		R Q D (%)	FRACTURES PER FOOT		DESCRIPTION	ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
					DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS		
					499.0' - Mechanical break 499.2-499.5' - Fracture zone Limestone 491.7-500.0' - very pale orange to grayish orange, (10YR 8/2 to 10YR 7/4), very fine to fine grained, mild HCl reaction, very weak to medium strong (R1 to R3), voids (<1/16") over 10% of surface, voids (<3/8") over 5% of surface, trace larger cavities No Recovery 493.1-494.0' Limestone 495.35' - very weak to medium strong (R1 to R3), wavy to undulant silt sized laminae with organic interbeds, <1/2" total thickness 496.2' - very weak to medium strong (R1 to R3), wavy to undulant silt sized laminae with organic interbeds, <1/2" total thickness 498.45' - very weak to medium strong (R1 to R3), wavy to undulant silt sized laminae with organic interbeds, <1/2" total thickness No Recovery 499.5-500.0' Bottom of Boring at 500.0 ft bgs on 8/24/2007		